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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application	REISSUE PATENT APPLICATION
Inventor(s): Kenneth N. Bates	
Reissue Serial No.: 09/628,942	Art Unit: 3662
Original Patent No.: 5,787,049	Examiner: Lobo, I.
Original Patent Issued: 07/28/98	
Reissue Filed: 07/28/00	
Title: Acoustic Wave Imaging Apparatus and Method	

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelope addressed to **Commissioner for Patents, P.O. Box 1450, Arlington, VA, 22313-1450** on 3-29-04.

(Attorney Signature)

Steven J. Adamson, Reg. No. 32,776
Signature Date: 3-29-04

PETITION TO REVIVE UNINTENTIONALLY ABANDONED APPLICATION

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madam:

Applicant hereby petitions the Commissioner to revive the above-identified application. The entire delay in timely filing the required reply was unintentional.

Enclosed with this Petition are the following:

- x The required reply (though previously submitted in both the Petition to Revive Unavoidably Abandoned Application and the Renewed Petition to Revive Unavoidably Abandoned Application);
- x Petition fee set forth in 37 C.F.R. §1.17(m); and
- x The requisite statement under 37 C.R.R. §1.137(b).

Remarks

Applicant submitted a first Petition to Revive Unavoidably Abandoned Application on June 3, 2003. This Petition was dismissed in a Decision mailed June 30, 2003. The June 30

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Decision stated that "Any requests for reconsideration of this decision should be submitted within TWO (2) MONTHS of the mail date of this decision … [and] include a cover letter entitled 'Renewed Petition under 37 CFR §1.137(a).'"

On July 29, 2003, Applicant submitted a Renewed Petition under 37 CFR §1.137(a) to Revive an Unavoidably Abandoned Application. This Petition emphasized an inconsistency in 37 C.F.R. §1.173 which led to the late filing of the desired response. The substance of the inconsistency in 37 C.F.R §1.173 was *not* addressed in the Decision of the Petitions Office mailed June 30, 2003.

Applicant has been awaiting the Petitions Office's Decision on the Renewed Petition. It was initially suspected by the undersigned that the delay in responding on the part of the Patent Office was due to an investigation of the inconsistencies in 37 C.F.R. §1.173, recognition that it was necessary to re-write this code section, and the internal workings of the Patent Office to develop consistent language and procedurally change the code section. The undersigned also suspected delays due to workload, work stoppages due to Congressional appropriation delays and/or the end-of-year holidays.

In any event, a response from the Petition's Office has still not been received. While maintaining that 37 C.F.R. §1.173 contains an inconsistency that caused the filing of the allegedly non-compliant response, Applicant has become impatient with the delay of the Patent Office and, accordingly, submits this Petition to Revive Unintentionally Abandoned Application under 37 C.F.R. §1.137(b) to move forward prosecution of this case.

Thank you for your time and consideration of this Petition. Any questions or comments may be directed to the undersigned at the listed contact information. The Commissioner is authorized to charge any underpayment or credit any overpayment associated with this communication to Deposit Account No. 01-0272. A duplicate copy of this authorization is enclosed.

Respectfully submitted,

Date: 3-29-04

By: _____
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Below please find reissue claims 24-40 underlined in their entirety, without bracketed deletions and with appropriate parenthetical expressions ("amended", "twice amended," etc.), pursuant to 37 CFR 1.173(b).

24 (twice amended). An acoustic energy transmitting apparatus, comprising:

a plurality of electro-acoustic transducer elements arranged in an M row by N column array, where M and N are positive integers and at least one of M and N is greater than one;

control circuit for propagating row and column control signals for each of said M rows and said N columns, each control signal having a frequency and a phase component; and

wherein each transducer element is configured to function as an active device so as to achieve a combining at each transducer element of the frequency and phase components of the row and column control signals for that transducer element in such a manner as to provide a focused acoustic signal at a given focal distance and direction from said array.

25. The apparatus of claim 24, wherein the electric signal to acoustic signal relationship and vice versa of each transducer element is non-linear.

26 (amended). The apparatus of claim 24, wherein said control circuit includes a control channel for each of said M rows and a control channel for each of said N columns, and wherein the number of control channels is fewer than the number of transducer elements.

27. The apparatus of claim 24, wherein said control circuit is configured such that the row and column signals for at least some of the transducer elements includes a coded signal.

28 (amended). The apparatus of claim 27, wherein M equals one.

29 (amended). An acoustic energy transmitting apparatus, comprising:

a plurality of electro-acoustic transducer elements arranged in an M row by N column array, where M and N are positive integers and at least one of M and N is greater than one;

M row control lines, each coupled to the transducer elements in one of said M rows;

N column control lines, each coupled to the transducer elements in one of said N columns;

control circuit for propagating row and column control signals for each of said M rows and said N columns, a control signal for each transducer element being a combination of one of said row control signals and one of said column control signals;

a plurality of active devices, each coupled to one of said transducer elements for combining the row control signal and the column control signal of that transducer element;

wherein said transducer elements, control circuit and active devices are configured so as to achieve a combining at each transducer element of the row and column control signals for that transducer element in such a manner as to provide a focused acoustic signal at a given focal distance and direction from said array; and

wherein each of said electro-acoustic transducer elements is configured within said apparatus to function in a non-linear manner in operation.

30 (twice amended). An acoustic energy receiving apparatus, comprising:

a plurality of electro-acoustic transducer elements arranged in an M row by N column array;

control circuit for propagating row and column control signals for each of said M rows and said N columns, each row and column control signal having a frequency and a phase component; and

wherein said transducer elements and said control circuit are configured so as to achieve a combining at each transducer element of the frequency and phase components of the row and column control signals for that transducer element with a resultant electrical receive signal, corresponding to an acoustic signal incident on that transducer element, in such a manner as to modify the frequency and phase of the transducer element's electrical receive signal so as to achieve the coherent

combination of the modified electrical receive signals from all of said plurality of transducer elements; and

a filter that filters spurious frequencies output from the transducer elements;

wherein said transducer elements, control circuit and filter are configured to achieve focused acoustic signal reception at a given distance and direction from said array.

31. The apparatus of claim 30, wherein said transducer elements and said control circuit are configured to achieve dynamic focused acoustic signal reception.

32. The apparatus of claim 31, wherein the electric signal to acoustic signal relationship and vice versa of each transducer element is non-linear.

33 (amended). The apparatus of claim 30, wherein said filter includes a matched filter.

34. The apparatus of claim 33, wherein said matched filter includes a conjugate of a coded signal.

35 (amended). The apparatus of claim 29, wherein M equals one.

36 (twice amended). The apparatus of claim 30, further comprising a circuit that generates image data from the coherent combination of transducer element receive signals.

37 (amended). The apparatus of claim 30, wherein said control circuit includes a control channel for each of said M rows and a control channel for each of said N columns, and wherein the number of control channels is fewer than the number of transducer elements.

38. An acoustic energy receiving apparatus, comprising:

a plurality of electro-acoustic transducer elements each capable of generating an electrical receive signal in response to an incident

acoustic wave and arranged in an M row by N column array, where M and N are positive integers and at least one of M and N is greater than one;

control circuit for propagating row and column control signals for each of said M rows and said N columns, the control signal for each transducer element being a combination of the row and column control signals for that transducer element;

wherein said row and column control signals are configured, for each transducer element, such that when combined with the electrical receive signal of that transducer element the electrical receive signal is modified in such a manner as to permit the simultaneous processing of the modified electrical receive signals from said plurality of transducer elements;

a first circuit that combines the modified electrical receive signals of each of said transducer elements to form an array output signal; and

a second circuit coupled to said first circuit that generates image data from said array output signal.

39. The apparatus of claim 38, wherein M equals one.

40. The apparatus of claim 24, wherein each transducer element includes non-linear electro-acoustic material.